

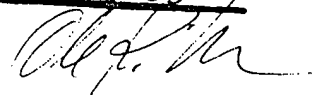
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Ole K. Nilssen
For: ELECTRONIC BALLAST FOR
FLUORESCENT LAMPS
Serial No: 06/541,489
Filed: October 13, 1983
Art Unit: 266
Examiner: V. DeLuca

Which is a Continuation of: Serial No: 06/342,107
Filed: JANUARY 25, 1982

APPEAL BRIEF

I, OLE K. NILSSEN, HERewith
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Commissioner of Patents and Trademarks
Washington, D.C. 20231

Pursuant to Notice of Appeal, which was mailed to the PTO on 05/15/85, Applicant herewith provides the following Appeal Brief.

Claims 48-51 are at issue, and Applicant appeals from Examiner's rejection of these claims under 35 U.S.C. 103.

Concise Explanation of Invention

The invention may be concisely expressed in the form of a generic claim, as follows.

"In an inverter adapted to be powered from a DC voltage and operable to provide an AC voltage at an output, the inverter requiring a manifest trigger pulse for initiating inverter operation, the improvement comprising:

means to provide said trigger pulse, but only when a load is connected across said output; and

means to make the inverter cease operating whenever said load is disconnected from said output."

With reference to Fig. 1 of subject application, the critical component parts of the invention may be concisely explained as follows.

- * The inverter consists of transistors 4U & 4L and saturable feedback transformers 5U & 5L. Since the base of each transistor is DC-shortcd to the emitter, the inverter can not get started except by being triggered into operation.

- * The inverter is powered from a center-tapped source of DC voltage, whose B+ terminal is point 2x, whose B- terminal is point 2y, and whose center-tap is point 3C.

- * The inverter is triggered into operation by way of elements 11, 12 & 13, but only when a DC voltage of adequate magnitude is provided between point 6R and the emitter of transistor 4L.

- * Such a DC voltage is provided from the B- terminal (2y), but only when the load (7) is connected, thereby yielding a conductive path between 3C and 6R.

- * The inverter is only capable of operation when the saturable feedback transformers (5U, 5L) have load current flowing through their primary windings. Hence, when the load (7) is removed, the inverter stops operation.

Examiner rejected claims 48-51 under 35 U.S.C. 103 as being unpatentable over Nilssen in view of Agnew, both of record.

Fig. 8 of the Nilssen reference shows an inverter of the type referred to in Applicant's claimed invention, including the trigger means required therefor. However, as long as the inverter is connected with an adequate DC voltage, the trigger means of Nilssen provides trigger pulses continuously, regardless of whether or not the load is connected.

Agnew describes an inverter of a different type than that of Nilssen. Specifically, Agnew's inverter is not of the type that needs to be triggered into operation; and, in fact, does not have any means for providing trigger pulses. Hence, the problem for which Applicant's invention provides a solution, does not exist in Agnew's inverter.

The problem for which Applicant's invention provides a solution is explained on page 3 of Applicant's Amendment B, and relates to the elimination of the considerable Radio Frequency Interference (RFI) resulting from continuous application of trigger pulses to the inverter when the load is removed. This RFI is significantly detrimental, especially during frequently-occurring long periods when the inverter is provided with DC voltage but is not connected with a load.

More specifically, in several anticipated usage situations related to the circuit arrangement of Fig. 1, it is expected that the rectifier/inverter combination will be left connected with the power line for extended periods of time, but that a load will be connected only during occasional relatively brief periods. Hence, to have a significantly annoying RFI present during extended periods of time definitely represents a problem.

Thus, the invention as expressed by the generic claim, or by claim 48, may be considered as a modification of Nilssen's Fig. 8: a modification by which resistor 213 is moved to connect with the point marked 210 (or some point that is DC-equivalent thereto), and where transformer 207 -- which represents the load on the inverter -- is removable.

However, absent a good reason to the contrary, the natural place to connect resistor 213 is exactly as shown in Fig. 8. Connecting resistor 213 to point 210 would result in a doubling of the power dissipation in the resistor -- with correspondingly reduced inverter efficiency -- without yielding any other obviously apparent benefit (excepting, of course, the benefit enunciated by the invention of subject patent application).

Authorities

MPEP 706.02: "After indicating that the rejection is under 35 U.S.C. 103, there should be set forth (1) the difference or differences in the claim over the applied reference(s), (2) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and (3) an explanation why such proposed modification would be obvious"

1. "patentable invention may lie in discovery of source of problem even though remedy may be obvious once source of problem is identified" (In re Spinnoble, 405 F.2d 578, 160 USPQ 237, 1969);

2. "A patentable invention within the ambit of 35 U.S.C. 103 may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the result inherent in their use" (In re Spinnoble, 405 F.2d 578, 160 USPQ 243, 1969);

3. "Where unobvious aspect of invention resides in recognition of source of problem, Patent Office inquiries should be directed, in part at least, to question of whether such a recognition would have been obvious to one of ordinary skill in the art; inquiry must go beyond the nature of the solution" (In re Roberts, 470 F.2d 1399, 176 USPQ 313, 1973);

4. "we also believe that a more proper, albeit not exclusive, inquiry in a case such as this is to look further as to the reasons for making the combination" (In re Sponnoble, 405 F.2d 578, 160 USPQ 243, 1969);

5. "If there is no evidence that a person of ordinary skill in the art at time of applicant's invention would have expected problem to exist at all, it is not proper to conclude that invention which solves this problem, which is claimed as an improvement of prior art device, would have been obvious to that hypothetical person". (In re Nomiya, 184 USPQ 608, 1975)

6. "There must be a reason apparent at time invention was made to person of ordinary skill in the art for applying the teaching at hand, or use of teaching as evidence of obviousness will entail prohibited hindsight". (In re Nomiya, 184 USPQ 608, 1975)

Arguments

With specific reference to claim 48, Applicant appeals from Examiner's rejection for the following reasons.

a) As required in accordance with MPEP 706.02, Examiner has not set forth "the difference in the claim over the applied references".

Examiner's statement that "It is obvious to place the cathode filaments in series circuit with the feedback loop of Nilssen fig. 8 as suggested by Agnew" represents an unsupported assertion that relates to only the second of the two elements of the claim, and does not help explain "the difference in the claim over the applied reference".

Examiner's statement that "it is obvious to one of ordinary skill in the art that if there is no load connected to the inverter output, the application of trigger pulses is useless" represents an assertion with which Applicant might agree. However, this assertion has no relevancy in the present

context since the claimed invention provides the feature of removing the trigger pulses, not because they are "useless", but rather because their presence represents a problem. Moreover, this assertion by Examiner does not help explain "the difference in the claim over the applied reference".

b) As required in accordance with MPEP 706.02, Examiner has not set forth "an explanation why such proposed modification would be obvious".

Examiner makes an unsupported assertion of obviousness, as quoted under a) above, but he does not provide for "an explanation". The nearest Examiner comes to an attempted explanation is represented by the following statement by Examiner:

"Therefore it logically follows from the teaching of Agnew of the total disablement of the oscillator upon lamp removal, that the trigger pulse means of Nilssen should be included in the cathode filament series circuit, to attain the claimed invention";

which statement follows the two statements quoted under a) above. However, after having tried as best he can, Applicant can not within any stretch of his imagination understand that it "logically follows from the teaching of Agnew ---- that the trigger pulse means of Nilssen should be included in the cathode filament series circuit". Why should the "trigger pulse means of Nilssen" be included in "the cathode filament series circuit"?

c) With reference to Authority #5 above, Applicant contends that there is no evidence presented by Examiner, or provided by the applied references, to the effect "that a person of ordinary skill in the art ---- would have expected problem to exist at all". Therefore, "it is not proper to conclude that invention which solves this problem ---- would have been obvious to that ---- person".

Specifically, what is the obvious problem to which Applicant's claimed invention represents a solution? And, where and/or how is that problem suggested in or by any of the applied references?

d) With reference to Authority #6 above, Examiner has not presented "a reason apparent at time invention was made to person of ordinary skill in the art for applying the teaching at hand". Therefore, Examiner's use of "teaching as evidence of obviousness" entails "prohibited hindsight".

In what credible way can it be argued that there was "a reason apparent at time invention was made ---- for applying the teaching at hand"? What could possibly that reason be?

The arguments presented in sections a) to d) hereinabove in connection with claim 48 pertain to claim 49-51 as well.


Concluding Remarks

Based on the applied references, and in view of the above authorities and arguments, Applicant maintains that all the claims at issue should be allowed in their present form.

Applicant's claimed invention represents an arrangement for solving a problem that was unanticipated and unique at the time the invention was made. It is hard for Applicant to imagine that this problem could by any stretch of the imagination be considered as apparent or obvious to a person of ordinary skill in the art at the time the invention was made.

If any of the Examiners in Chief assigned to consider this appeal should have any significant disagreement with Applicant's arguments as presented herein, they are invited to call Applicant on the telephone, thereby to help to cost-effectively reach a resolution of the issues at hand.

A copy of the claims at issue is attached hereto, as is also a check (#800) in the amount of \$57.50 to cover the fee for this appeal.


Ole K. Nilssen, Applicant

312-658-5615

Date: 5-18-85

48. In an inverter connected with a DC source and operable to provide an AC voltage at an output, said inverter requiring a manifest trigger pulse for initiating inverter operation, the improvement comprising:

means to provide said trigger pulse, but only when a load is connected across said output; and

means to make the inverter cease operating whenever said load is disconnected from said output.

49. In a conditionally self-oscillating inverter connected with a DC source and operable to provide an AC voltage at an output, said inverter requiring an input of a manifest trigger pulse for initiating inverter self-oscillation, the improvement comprising:

means to provide said trigger pulse, but only when a load is connected across said output; and

means to make the inverter cease operating whenever said load is disconnected from said terminals;

whereby said inverter is quiescent and receiving no trigger pulses during periods when no load is connected across said output.

50. A ballasting means for a gas discharge lamp, comprising:

inverter means connected with a source of DC voltage and operable, but only after having received a manifest trigger pulse, to provide an AC voltage at an output;

connect means operable to permit connection of said lamp with said output; and

a source of trigger pulses operable to provide said trigger pulse, but only when said lamp is connected with said output.

51. A ballasting means for a fluorescent lamp, said fluorescent lamp having four electrical terminals, said ballasting means comprising:

inverter means connected with a source of DC voltage and operable, but only after having received a manifest trigger pulse, to provide an AC voltage at an output;

connect means operable to permit connection of all of said terminals in circuit with said output; and

a source of trigger pulses operable to provide said trigger pulse, but only when all of said terminals are connected with said output.